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Study of pixilated CdZnTe Detectors and Comparison of Data with Simulations ALEXANDER LEDER, THOMAS KUTTER, JUN MIYAMOTO, Louisiana State University — A search for neutrinoless ßß decay provides an opportunity to determine whether neutrinos are Majorana particles and promises to determine an effective neutrino mass. Detecting this phenomenon requires very sensitive detectors with good energy resolution and background rejection capabilities. Pixilated CdZnTe detectors offer good energy resolution and allow the reconstruction of charged particle tracks. We studied the performance of a CdZnTe pixelated detector over a wide range of energies using both experimental data and a GEANT4 based simulation of particle interactions inside the detector. By recording signal locations as well as energy deposited per pixel, a linear track reconstruction was used to determine the original particle track. The comparison between simulated and collected data helped to interpret the experimental data. In this presentation we will describe the experimental setup, the simulation and show results of the study.

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